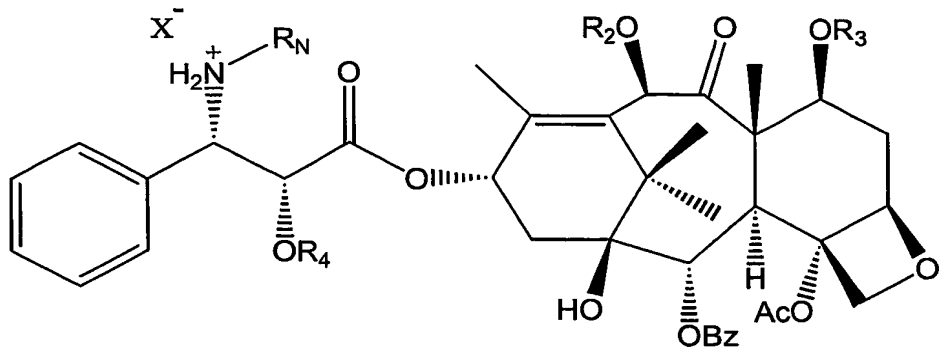
We claim:

1. A compound for producing of a taxane or precursor or analog thereof, comprising:



wherein, R_2 is H, Ac or a protecting group;

R_3 is H, xylosyl or protecting group;

R_4 is H or protecting group;

R_N is H or an alkyl group; and

X= deprotonated sulfuric acid.

2. The compound of claim 1, in solid form.

3. The compound of claim 2, in solid substantially purified form.

4. The compound of claim 1, wherein R_2 is Ac and R_3 is H.

5. The compound of claim 1, wherein R_2 is H and R_3 is H.

6. The compound of claim 1, wherein R_2 is Ac and R_3 is xylosyl.

7. The compound of claim 1, wherein R_2 is H and R_3 is xylosyl.

8. The compound of claim 1, wherein R_2, R_3 and R_4 is the protecting group selected from the group consisting of triethylsilyl, trimethylsilyl, trichloroethoxycarbonyl or ethoxyethyl ether.

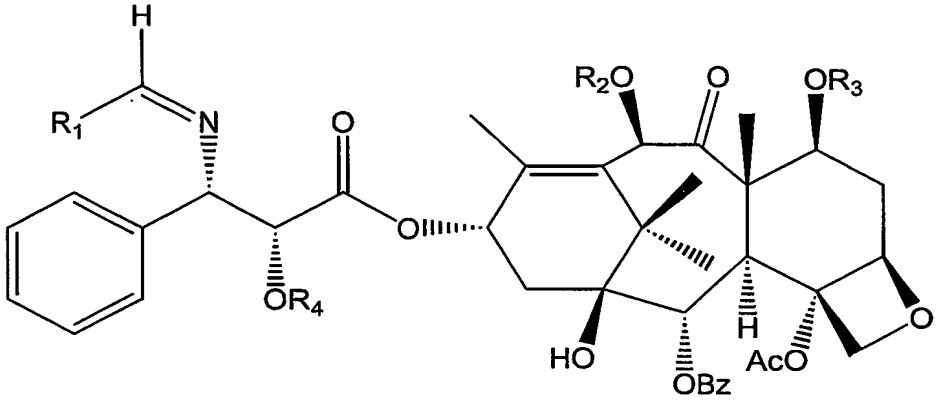
9. The compound of claim 1, wherein R_3 and R_4 is a protecting group selected from the group consisting of triethylsilyl, triethylsilyl, trichloroethoxycarbonyl and ethoxyethyl ether.

10. The compound of claim 1, wherein R_3 and R_4 is trimethylsilyl.

11. The compound of claim 1, wherein R_4 is a protecting group selected from the group consisting of triethylsilyl, triethylsilyl, trichloroethoxycarbonyl and ethoxyethyl ether.

12. The compound of claim 1, wherein R_4 is trimethylsilyl.

13. A method of forming a taxane salt comprising the steps of: (i) contacting a taxane imine with a solvent; and (ii) contacting a taxane imine with a sulphate-containing acid; said taxane imine having the formula:



Also, please use the same structure for figure 2 that you use in figure 1. Figure 1 is the correct structure for 1 and 2.

wherein, R_1 =alkyl, aryl, carbonyl or ether group;

R_2 =H, alkyl, aryl, ester, ether or protecting group;

R_3 =H, alkyl, aryl, ether, ester, xylosyl, or protecting group;

R_4 =H or protecting group.

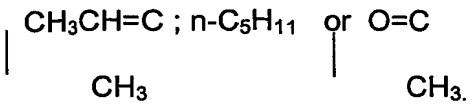
14. The method of claim 13, wherein R_1 =alkyl or aryl group;

R_2 =H, Ac or a protecting group;

R_3 =H, xylosyl, or protecting group; and

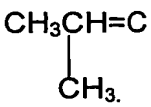
R_4 =H or a protecting group.

15. The method of claim 14, wherein R_1 is C_6H_5,



16. The method of claim 14, wherein R_1 is C_6H_5.

17. The method of claim 14, wherein R_1 is



18. method of claim 14, wherein R_1 is n-C_5H_{11}.

19. The method of claim 14, wherein R_2 is Ac, R_3 is H, and R_4 is H.

20. The method of claim 14, wherein R_2 is H, R_3 is H, and R_4 is H.

21. The method of claim 14, wherein R_2 is Ac, R_3 is xylosyl, and R_4 is H.

22. The method of claim 14, wherein R_2 is H, R_3 is xylosyl, and R_4 is H.

23. The method of claim 14, wherein R_2, R_3, and R_4 is a protecting group selected from the group consisting of triethylsilyl, trimethylsilyl, trichloroethoxycarbonyl, and ethoxyethyl ether

24. The method of claim 14, wherein R_3 and R_4 is a protecting group selected from the group consisting of triethylsilyl, triethylsilyl, trichloroethoxycarbonyl and ethoxyethyl ether.

25. The method of claim 14, wherein R3 and R4 is trimethylsilyl.

26. The method of claim 14, wherein R_4 is a protecting group selected from the group consisting of, triethylsilyl, triethyisilyl, trichloroethoxycarbonyl and ethoxyethyl ether.

27. The method of claim 14, wherein R_4 is trimethylsilyl.

28. The method of claim 13, further comprising the step of contacting the taxane imine with an anti-solvent; wherein the solvent is more polar than said anti-solvent.

29. The method of claim 13, wherein said solvent comprises tetrahydrofuran (THF).

30. The method of claim 13, wherein said anti-solvent comprises methyl tert-butyl ether (MTBE).

31. The method of claim 13, further comprising the step of contacting a taxane amide with transition metal reducing agent.

32. The method of claim 31, wherein said transition metal reducing agent is selected from the group of transition metal reducing agents consisting of Schwartz's reagent (zirconocene chloride hydride), Schwartz's reagent analogs, Schwartz's reagent derivatives, titanium-containing reducing agents, hafnium-containing reducing agents, niobium-containing reducing agents, and molybdenum-containing reducing agents.

33. The method of claim 31, wherein the transition metal reducing agent comprises zirconocene chloride hydride.

34. A method for producing a taxane from taxane mixtures comprising:

(i) contacting the taxane amide mixture with a transition metal reducing agent to provide a taxane imine mixture;

(ii) contacting the taxane imines with a solvent;

(iii) contacting the taxane imines with an acid to provide a taxane amine; and

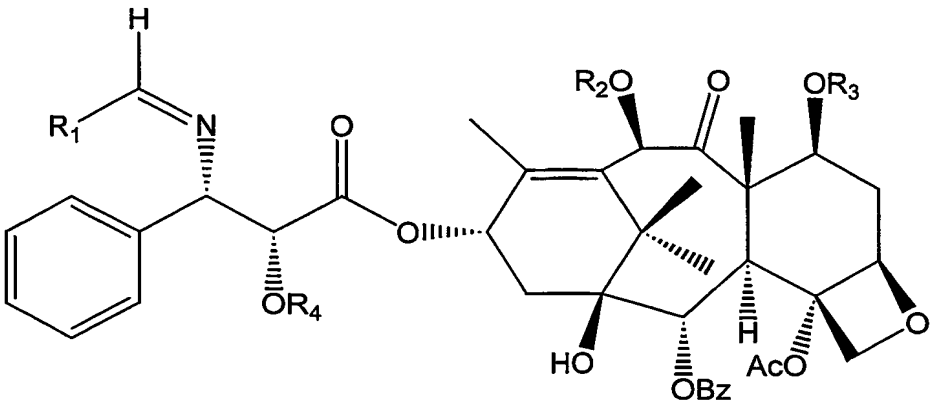
(v) contacting a taxane amine with at least one acylating agent to form a taxane.

35. The method of claim 34, wherein the transition metal reducing agent is selected from the group of transition metal reducing agents consisting of Schwartz's reagent (zirconocene chloride hydride), Schwartz's reagent analogs, Schwartz's reagent derivatives,

titanium-containing reducing agents, hafnium-containing reducing agents, niobium-containing reducing agents, and molybdenum-containing reducing agents.

36. The method of claim 35, wherein said transition metal reducing agent comprises zirconocene chloride hydride.

37. The method of claim 34, wherein said taxane imine comprises:



wherein, R_1 =alkyl, aryl, carbonyl or ether group;

R_2 =H, alkyl, aryl, ester, ether or protecting group;

R_3 =H, alkyl, aryl, ether, ester, xylosyl, or protecting group;

R_4 =H or protecting group.

38. The method of claim 37, wherein R_1 =alkyl or aryl group;

R_2 =H, Ac or a protecting group;

R_3 =H, xylosyl, or protecting group; and

R_4 =H or a protecting group.

39. The method of claim 37, wherein R1 is C6 H5,

$CH_3CH{=}C(CH_3)$; n-C_5H_{11} or $O{=}C(CH_3)$.

40. The method of claim 37, wherein R_1 is C_6H_5.

41. The method of claim 37, wherein R_1 is

$CH_3CH=C$

CH_3.

42. The method of claim 37, wherein R_1 is n-C_5 H_{11}.

43. The method of claim 37, wherein R_2 is Ac, R_3 is H, and R_4 is H.

44. The method of claim 37, wherein R_2 is H, R_3 is H, and R_4 is H.

45. The method of claim 37, wherein R_2 is Ac, R_3 is xylosyl, and R_4 is H.

46. The method of claim 37, wherein R_2 is H, R_3 is xylosyl, and R_4 is H.

47. The method of claim 37, wherein R_2, R_3, and R_4 is a protecting group selected from the group consisting of triethylsilyl, trimethylsilyl, trichloroethoxycarbonyl and ethoxyethyl ether.

48. The method of claim 37, wherein R_3 and R_4 is a protecting group selected from the group consisting of triethylsilyl, triethylsilyl, trichloroethoxycarbonyl and ethoxyethyl ether.

49. The method of claim 37, wherein R_3 and R_4 is trimethylsilyl.

50. The method of claim 37, wherein R_4 is a protecting group selected from the group consisting of triethylsilyl, triethylsilyl, trichloroethoxycarbonyl and ethoxyethyl ether.

51. The method of claim 37, wherein R_4 is trimethyisilyl.

52. The method of claim 34, further comprising the step of contacting the taxane imine with an antisolvent, wherein the said solvent is more polar than the antisolvent.

53. The method of claim 34, wherein the solvent comprises tetrahydrofuran (THF).

54. The method of claim 34, wherein the anti-solvent is selected from the group consisting of methyl tetra-butyl ether (MTBE), dichloromethane, heptane, hexane, toluene, and trifluorotoluene.

55. The method of claim 34, wherein said anti-solvent comprises methyl tert-butyl ether (MTBE).

56. The method of claim 34, wherein said transition metal reducing agent is selected from the group of transition metal reducing agents consisting of Schwartz's reagent (zirconocene chloride hydride), Schwartz's reagent analogs, Schwartz's reagent derivatives, titanium-containing reducing agents, hafnium-containing reducing agents, niobium-containing reducing agents, and molybdenum-containing reducing agents.

57. The method of claim 34, wherein said transitional metal reducing agent comprises zironocene chloride hydride.

58. The method of claim 34, further comprising the step of contacting a taxane imine and/or amine mixture with a chelating agent.

59. The method of claim 58, wherein said chelating agent comprises a chelating agent effective to chelate a transition metal.

60. The method of claim 58, wherein said chelating agent is selected from the group of chelating agents consisting of bicine, ethylene diamine tetra acetic acid (EDTA), ethylene glycol (bis) aminoethyl ether tetra acetic acid (EGTA), 1,2-bis-(*o*-aminophenoxy)ethane-*N*,*N*,*N*′,*N*′-tetra-acetic acid (BAPTA), *N*,*N*,*N*′,*N*′-tetrakis-(2-pyridylmethyl)ethylenediamine (TPEN), nitrilotriacetic acid, TIRON®, and analogs thereof.

61. The method of claim 58, wherein said chelating agent comprises bicine.

62. The compound of claim 1, wherein X is a deprotonated nitric acid or other nitrogen containing acids.

63. The compound of claim 1, wherein X is a deprotonated sulfur containing acid.

64. The compound of claim 1, wherein X is a deprotonated carboxcyclic acid, except trifluro acetic acid.

65. The compound of claim 1, wherein X is deprotonated phosphoric acid or any phosphorus containing acid.

66. The compound of claim 1, wherein X is deprotonated tartaric acid.

67. The compound of claim 1, wherein X is deprotonated perchloric acid.

68. The compound of claim 1, wherein X is deprotonated p-tolulene sulfonic acid, and said compound is in solid form.

69. The compound of claim 1, wherein X is a deprotonated picric acid.

70. The compound of claim 1, wherein X is a deprotonated halogen containing acid, except hydrochloric acid.

71. The method of claims 34-61, wherein the taxane is taxol A.

72. The method of claims 34-61, wherein the taxane is taxol B.

73. The method of claims 34-61, wherein the taxane is taxol C.

74. The method of claims 34-61, wherein the taxane is taxol D.

75. The method of claims 34-61, wherein the taxane is taxol E.

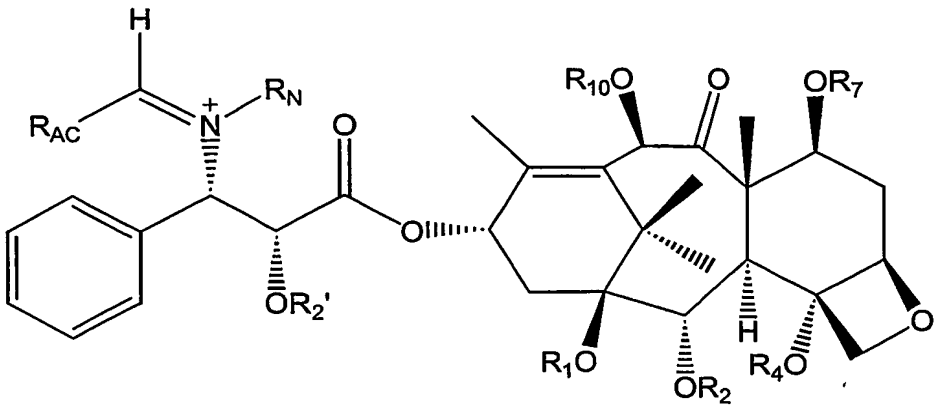
76. The method of claims 34-61, wherein the taxane is taxol F.

77. The method of claims 34-61, wherein the taxane is taxol G.

78. The method of claims 34-61, wherein the taxane is Docetaxel.

79. A method of forming a taxane imine or iminum compound, comprising the steps of:

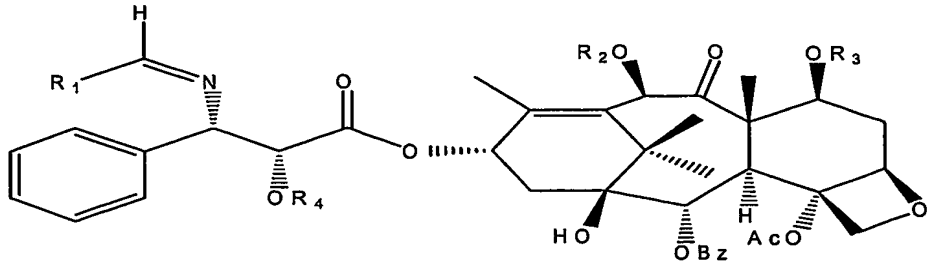
(i) contacting a taxane amide with a transition metal containing compound to form the taxane iminum compound comprising:



where R_1 is hydrogen; R_2 is hydrogen, an acyl group or a hydroxyl protecting group; R_4 is an acetate group; R_7 is hydrogen, an alkyl group, an aryl group, an ester group, an ether group, a glycoside group, an oxo-group, or a hydroxyl protecting group; R_{10} is hydrogen, an alkyl group, an aryl group, an ester group, an ether group, or a hydroxyl protecting group; $R_{2'}$ is a hydrogen, a hydroxyl-protecting group, an alkyl group, and aryl group, an ester, an ether group, or a vinyl group; R_N is an alkyl group; R_{AC} is an alkoxy group, an alkyl group, an aryl group, an arylalkyl group, an ether group, a heterocyclic group, an acyl group, or a vinyl group.

80. A method of forming a taxane salt comprising the steps of: (i) contacting a taxane imine with a solvent; and (ii) contacting a taxane imine with a deprotonated nitrogen containing acid, deprotonated phosphorus containing acid, tartaric acid, perchloric acid, deprotonated phosphorous containing acid, deprotonated picric acid, p- deprotonated p-tolulene sulfonic acid or deprotonated halogen containing acids, except hydrochloride.

81. The method of claim 80, wherein the taxane imine comprises:



wherein, R_1 =alkyl, aryl, carbonyl or ether group;

R_2 =H, alkyl, aryl, ester, ether or protecting group;

R_3 =H, alkyl, aryl, ether, ester, xylosyl, or protecting group;

R_4 =H or protecting group.

82. The method of claim 80, further comprising the step of contacting the taxene imine with an antisolvent.

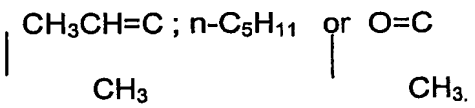
83. The method of claim 80, wherein R_1 =alkyl or aryl group;

R_2 =H, Ac or a protecting group;

R_3 =H, xylosyl, or protecting group; and

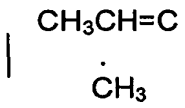
R_4 =H or a protecting group.

84. The method of claim 81, wherein R_1 is C_6H_5,



85. The method of claim 81, wherein R_1 is C_6H_5.

86. The method of claim 81, wherein R_1 is



87. The method of claim 81, wherein R_1 is n-C_5H_{11}.

88. The method of claim 81, wherein R_2 is Ac, R_3 is H, and R_4 is H.

89. The method of claim 81, wherein R_2 is H, R_3 is H, and R_4 is H.

90. The method of claim 81, wherein R_2 is Ac, R_3 is xylosyl, and R_4 is H.

91. The method of claim 81, wherein R_2 is H, R_3 is xylosyl, and R_4 is H.

92. The method of claim 81, wherein R_2, R_3, and R_4 is a protecting group selected from the group consisting of triethylsilyl, trimethylsilyl, trichloroethoxycarbonyl and etholy ethyl ether.

93. The method of claim 81, wherein R_3 and R_4 is a protecting group selected from the group consisting of triethylsilyl, triethylsilyl, and trichloroethoxycarbony and etholy ethyl ether.

94. The method of claim 81, wherein R3 and R4 is trimethylsilyl.

95. The method of claim 81, wherein R_4 is a protecting group selected from the group consisting of triethylsilyl, triethylsilyl, trichloroethoxycarbonyl and ethoxy ethyl ether.

96. The method of claim 81, wherein R_4 is triethyisilyl.

97. The method of claim 80, wherein said solvent is more polar than said antisolvent.

98. The method of claim 80, wherein said solvent comprises tetrahydrofuran (THF).

99. The method of claim 80, wherein said anti-solvent comprises methyl tert-butyl ether (MTBE).

100. The method of claim 80, wherein said taxane imine was produced from a taxane amide contacted with a transition metal reducing agent.

101. The compound of claim 1, wherein the compound is for the production of taxol A.

102. The compound of claim 1, wherein the compound is for the production of taxol B.

103. The compound of claim 1, wherein the compound is for the production of taxol C.

104. The compound of claim 1, wherein the compound is for the production of taxol D.

105. The compound of claim 1, wherein the compound is for the production of taxol E.

106. The compound of claim 1, wherein the compound is for the production of taxol F.

107. The compound of claim 1, wherein the compound is for the production of taxol G.

108. The compound of claim 1, wherein the compound is for the production of Docetaxel.

109. The compound of claim 1, wherein the compound is for the production of Nonataxel.

110. A method of forming a taxane imine comprising the step of: (i) contacting a taxane amide with a transition metal reducing agent.

111. The method of claim 110, wherein said transition metal reducing agent is selected from the group of transition metal reducing agents consisting of Schwartz's reagent (zirconocene chloride hydride), Schwartz's reagent analogs, Schwartz's reagent derivatives, titanium-containing reducing agents, hafnium-containing reducing agents, niobium-containing reducing agents, and molybdenum-containing reducing agents.

112. The method of claim 110, wherein said transitional metal reducing agent comprises zironocene chloride hydride.